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REMARKS ON *LYGUS INVITUS* SAY, WITH DESCRIPTIONS OF A NEW SPECIES AND VARIETY OF *LYGUS*. (HEMIPTERA MIRIDÆ).

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The writer has spent considerable time during the past three seasons making observations on the life history and food plants of many species of *Miridæ* and particularly in the genus *Lygus*. The writer is also concluding work on a monograph of the genus *Lygus*, but for the benefit of certain economic workers interested in the forms here considered this small contribution is published in advance.

In the past *Lygus invitus* Say has been the name generally applied to the members of a small group of species, which on careful study based upon distinctive structures furnished by the male genital claspers, are readily and consistently separated. Thomas Say described *invitus* in 1831 and in his usual style this early worker brought out certain characters that will distinguish the species from all others. After a careful study of some forty species of *Lygus*, I wish to point out a distinctive combination of characters mentioned by Say and not exhibited by any other form thus far brought to my attention. The following is taken from the original description: "*C. invitus*—Dark livid or blackish; beneath green with a blackish lateral vitta." "Head . . . with an impressed longitudinal line . . . scutel with a pale, obsolete vitta, beyond the middle . . . beneath green, with a broad lateral black vitta."

After careful search for food plants I find that *invitus* breeds only on the elm, preferring always the young, thrifty plants with succulent shoots. The nymphs are pale greenish, hatching soon after the leaves come out in the spring from eggs that were inserted in the twigs the previous July. One can scarcely distinguish the nymphs from those of the species described below and which is well known as a pest on the pear. The nymphs are, however, smaller and more slender than those of the false

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tarnished plant-bug. In a previous article, (Jour. Ec. Ent., vol. 8, p. 296, 1915) the writer described the manner of oviposition of the false tarnished plant-bug which is the same insect as *communis* described below, while the reference to this species breeding on elm refers to the true *invitus* of Say.

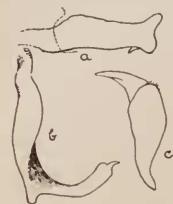


Fig. 16. *Lygus invitus* say, male genital claspers; a, lateral aspect of the sinistral forcep; b, sinistral forcep dissected, dorsal aspect; c, dextral forcep dissected, ventral aspect.

The male claspers of *invitus* show a close similarity to those of *communis*, but the practiced worker will note certain constant differences, and which are exhibited in the drawings (figs. 16, 17). The absence of a spine on the inner curve of the dextral forcep of *invitus* will distinguish this species

at once from *communis*.

*Lygus communis* n. sp. Easily distinguished from *invitus* by the two black rays on the disk of the pronotum and by reddish in the lateral stripe on the body. Differs structurally in not having the impressed longitudinal line on the vertex and in the form of the male claspers.

*Male*—Length 5.5 mm. *Head*: width across the eyes, 36\*; width between eyes, 15; length (lateral measurement) 14; height at base, 22; yellowish brown or greenish marked with reddish; basal half of the tylus, arched portions of the juga, loræ, and bucculæ marked with reddish, also the front frequently marked with red in the form of transverse lines; apical half of the tylus dark brownish to fuscous; vertex full, without an impressed longitudinal line as in *invitus*, but having a slight triangular, flattened space just before the carina; eyes dark brownish, sometimes faded to pale on the



Fig. 17. *Lygus communis*, male genital claspers; a, lateral aspect of sinistral forcep; b, sinistral forcep dissected, dorsal aspect; c, dextral forcep dissected ventral aspect.

\* Measurements for the head, antennæ and pronotum are given in micrometer readings which for comparison are more useful than figures given in millimeters. To reduce these measurements to millimeters multiply by .0254.

margins. Rostrum reaching to near the posterior margin of the hind coxæ, yellowish to brownish, the apex blackish.

*Antennæ*: segment I, length 20, greenish, frequently darkened with brownish; segment II, length 70, dark brownish to fuscous, sometimes basal half paler; segment III, length 42, dark brownish; segment IV, length 38, same colour as the preceding; all the segments with very fine, pale yellowish pubescence.

*Pronotum*: length 33, width at base 62, apex 32, width of collar 24; greenish, darkened with brownish on the basal half, two blackish rays on the disk, one behind each callus, in the darkest specimens extending across the calli, widening behind and nearly reaching the basal margin; coxal cleft marked with reddish, sides just posterior to this much darkened; disk shining, very finely and closely punctured, the punctures more or less transversely confluent especially on the basal half. Scutellum greenish darkened with brownish, transversely rugose; specimens maturing on *Ilex* and *Cornus* frequently have a longitudinal median fuscous line. Sternum pale beneath with the sides reddish as are the lateral parts of the meso- and metathorax.

*Hemelytra*: greatest width 2.3 mm., closely and minutely punctured, with fine yellowish pubescence; dark brownish to fuscous, darker on the apical half of the corium and across the tip of the embolium; embolium except the tip, the base and narrow lateral margin of the corium, pale greenish; cuneus clear, tinged with yellow, the very tip sometimes slightly darkened; membrane darkened with fuscous veins and narrow margin at the apex of the cells and bordering the cuneus, a spot along the margin beyond the apex of the cuneus and extending inward to the cells, clear, thus isolating a fuscous spot along the margin close to the apex of the cuneus.

*Legs*: coxæ pale, usually with a spot of reddish at the base, femora greenish to yellowish, the posterior femora and often the intermediate pair twice annulated near the apex with reddish, frequently the whole apical half quite reddish; tibiæ greenish, sometimes slightly darkened toward the tip, spines pale brownish, tarsi yellowish to brownish, darker at the apex.

*Venter*: pale greenish beneath, a broad lateral band and the genital segment, dark reddish with brownish. The male claspers

are distinctive for the species (fig. 17). The spine shown on the dextral forcep is not present in *invitus*, and is usually visible in pinned specimens without dissection.

*Female*—Slightly broader and more robust than the male, does not differ materially in coloration though usually paler than the male.

This is the species commonly known as the false tarnished plant-bug, and is a destructive species to the cultivated pear. For an account of the life history see Parrott and Hodgkiss 1913\*. The species is found most commonly breeding on *Cornus*, particularly *C. stolonifera* and *C. paniculata*. I have also reared specimens from *Cornus alternifolia* and *Ilex verticillata*, and taken general specimens on the prickly ash (*Zanthoxylum americanum*).

The type specimens were collected by the writer on pear near Batavia, N. Y., July 4, 1914.

*Paratypes*: 67 specimens taken on pear, June 16 to Aug. 8, Batavia; 35 specimens from *Cornus stolonifera*, June 14 to Aug 6, Batavia; from *Cornus paniculata*, 5 specimens June 21, 10 specimens Aug. 1, 6 specimens Aug. 10, Batavia. From *Cornus alternifolia*, 16 specimens, June 25 to 29, Batavia; 3 specimens, June 25, Wyoming, N. Y.; 8 specimens, June 21, Portage, N. Y.; 3 specimens, July 27, McLean, N. Y.; from *Ilex verticillata*, 15 specimens, June 21, Batavia, N. Y. Miscellaneous specimens: 16 from near Batavia, N. Y., June 25 to 29; 7 specimens, June 27, Portage, N. Y.; 5 specimens, July 5, Four Mile, N. Y.; 2 specimens, June 13, and 3 specimens, July 24, Ithaca, N. Y.; 3 specimens, June 23, Conesus Lake, N. Y., all collected by the writer. Specimens from other collectors: ♀, June 25, Spring Brook, N. Y.; ♂, July 2, Hamburg, N. Y.; ♂ ♀, July 20, Salamanca, N. Y.; ♂, June 30, Bretton Woods, N. H., collected by Mr. E. P. Van Duzee; 2 ♂♂ June 22, Bennington, Vt.; ♂ ♀ July 15, Eastport, Me.; ♀, July 12, Capens, Me.; 2 ♂♂, July 15-24, Glen House, N. H., collected by Mr. C. W. Johnson. Male specimen from Fort Collins, Colo., Aug. 1, with an unusual amount of reddish on the body beneath.

\* The False Tarnished Plant-bug as a Pear Pest, New York Agr. Expt. Sta. Bull. 368.

**Lygus communis** var. **novascotiensis** n. var. Paler and more slender than the typical *communis* but not differing materially in the male claspers. Breeds abundantly on apple in Nova Scotia; but in New York I have been unable to take any form of *communis* on the apple.

Length 5.3 mm., greatest width 2 mm., more slender and much paler than the typical *communis*; the two black rays on the pronotum small but distinct; hemelytra more yellowish brown than fuscous; lateral stripe of the body reddish or darkened with fuscous.

This is one of the varieties or races of *communis* which may be worked out from the forms inhabiting different plants, and perhaps influenced somewhat by different external conditions.

Described from several specimens received from Mr. Wm. H. Brittain, of Truro, Nova Scotia, collected from apple at Kentville, Wolfville, and Smith's Cove, Nova Scotia, July 6 to 28, 1915.

#### GEOMETRID NOTES.

ON THE GENUS *XANTHORHÖE* HÜB. (*PETROPHORA* HÜB.).

BY L. W. SWETT, WEST SOMERVILLE, MASS.

The names *Xanthorhõe* Hüb. and *Petrophora* Hüb. have been used interchangeably, but *Petrophora* Hüb. ("Tentamen," 1805) has priority over *Xanthorhõe* Hüb. (Verz. bek. Schmett., 1816). The majority of European specialists are dropping the use of the "Tentamen" as they regard it more or less in the nature of a circular letter of doubtful date and place. Those who care to go farther into the matter should consult the excellent work of L. B. Prout and C. D. Sherborn (Annals and Magazine of Natural History, ser. 8, vol. IX, Jan., 1912); also Scudder (Proc. Am. Acad. Sci., vol. X, pp. 91-293, 1875), C. H. Fernald (Amherst, Mass., 16 pp., 1905), and Sherborn and Durant (Ann. Mag. Nat. Hist., ser. 7, Vol. II, pp. 491-495, Dec., 1898.)

The first species I propose to consider is *defensaria* Guen. (Spec. Gen., vol. X, p. 411, 1857; also Packard, Monograph, p. 149, 1876). This species was described from a male taken in California. Guenée says "near *munitata* Hüb. and especially *convallaria*, but more obscure," etc. The form that agrees most closely with this description—and I have examined some 400